ROLLING BEARING DEVICE FOR WHEEL WITH ROTATION SPEED DETECTION DEVICE

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Inventor: MURATA JUNJI
Applicant: KOYO SEIKO CO
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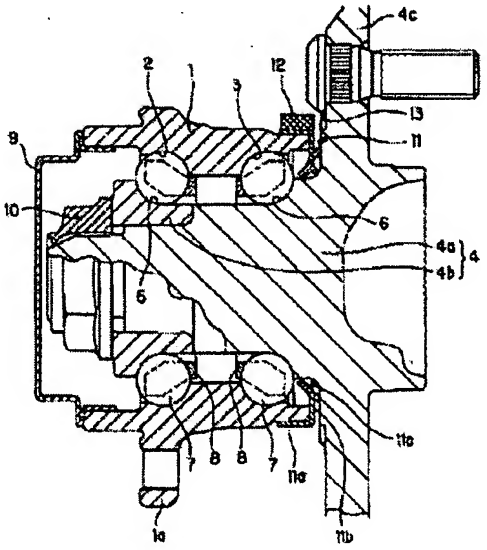
Abstract of **JP2002031147**

PROBLEM TO BE SOLVED: To provide a rolling bearing device for wheel with rotation speed detection device capable of realizing a compact size in an axial direction. SOLUTION: In the rolling bearing device for wheel with rotation speed detection device, a sealing device 11 fixed to a vehicle outside side of an outer ring member is formed by a cylindrical part 11a engaged and fixed to an outer periphery surface of the outer ring member 1; a circular ring part 11b inwardly and radially extending along an end surface of the outer ring member 1 from an end portion of this cylindrical part 11a; and a lip 11c fixed to an end portion of this circular ring part 11b and contacted with an inner ring member 4. A rotation detection member 12 is integrally provided on an outer periphery surface of the cylindrical part 11a of the sealing device 11. A rotation member 13 to be detected is provided on a radial flange 4c of the inner ring member 4 such that it is opposed to this rotation detection member 12.



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(71)出願人　000001247
光洋精工株式会社
大阪府大阪市中央区南船場３丁目５番８号
(72)発明者　村田　順司
大阪市中央区南船場三丁目５番８号　光洋精工株式会社内
(74)代理人　100086737
弁理士　岡田　和秀

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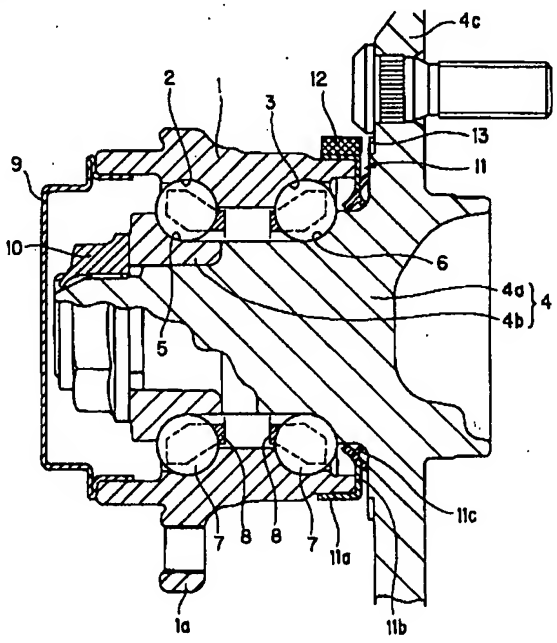
(54)【発明の名称】　回転速度検出装置付きホイール用転がり軸受装置

(57)【要約】
【課題】　軸方向にコンパクト化が可能となる回転速度検出装置付きホイール用転がり軸受装置を提供すること。
【解決手段】　回転速度検出装置付きホイール用転がり軸受装置において、外輪部材の車両外部側に固定された密封装置１１が、外輪部材１の外周面に嵌合固定される円筒部１１ａと、この円筒部１１ａ端部から外輪部材１端面に沿って内径方向に延びる円輪部１１ｂと、この円輪部１１ｂの端部に固定され内輪部材４に接触するリップ１１ｃとから形成され、上記密封装置１１の円筒部１１ａ外周面に回転検出部材１２が一体化されて設けられているとともに、この回転検出部材１２に対向するよう内輪部材４の半径方向フランジ４ｃに回転被検出部材１３が設けられていることを特徴とする。



【特許請求の範囲】
【請求項１】　内周面に複列の外輪軌道を有するとともに車体側に取り付けられる半径方向フランジが形成された外輪部材と、外周面に上記外輪軌道と対向する内輪軌道を有するとともに車輪側に取り付けられる半径方向フランジが車両外部側端部に形成された内輪部材と、上記外輪軌道と内輪軌道間に保持器にて保持されて回転自在に設けられた転動体と、外輪部材の車両内部側の端部に固定されて外輪部材開放部を密閉するカバーと、外輪部材の車両外部側の端部に固定された密封装置と、内輪部材側に装着された回転被検出部材と、この回転被検出部材に対向して外輪部材側に装着された回転検出部材とを備えた回転速度検出装置付きホイール用転がり軸受装置において、外輪部材に固定された密封装置は、外輪部材の外周面に嵌合固定される円筒部と、この円筒部端部から外輪部材端面に沿って内径方向に延びる円輪部と、この円輪部の端部に固定され内輪部材に接触するリップとから形成され、上記密封装置の円筒部外周面に回転検出部材が一体化されて設けられているとともに、この回転検出部材に対向するよう内輪部材の半径方向フランジに回転被検出部材が設けられていることを特徴とする回転速度検出装置付きホイール用転がり軸受装置。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】本発明は、自動車等に使用される回転速度検出装置付きホイール用転がり軸受装置に関する。
【０００２】
【従来の技術】従来、自動車等に使用される回転速度検出装置付きホイール用転がり軸受装置は、特開平８－２８５８７９号公報に記載のように、内周面に複列の外輪軌道を有するとともに車体側に取り付けられる半径方向フランジが形成された外輪部材と、外周面に上記外輪軌道と対向する内輪軌道を有するとともに車輪側に取り付けられる半径方向フランジが車両外部側端部に形成された内輪部材と、上記外輪軌道と内輪軌道間に保持器にて保持されて回転自在に設けられた転動体と、外輪部材の車両内部側の端部に固定されて外輪部材開放部を密閉するカバーと、外輪部材の車両外部側の端部に固定された密封装置と、内輪部材に装着された回転被検出部材と、この回転被検出部材に対向して外輪部材に固定されたカバーに装着された回転検出部材とを備えている。
【０００３】
【発明が解決しようとする課題】上記の従来の回転速度検出装置付きホイール用転がり軸受装置においては、回転検出部材が外輪部材に固定されたカバーと一体型として組み込まれているため、軸方向にスペースが必要となり、軸方向のコンパクト化が難しかった。
【０００４】本発明は、軸方向にコンパクト化が可能となる回転速度検出装置付きホイール用転がり軸受装置を提供することを目的とする。
【０００５】
【課題を解決するための手段】上記課題を解決する手段として、内周面に複列の外輪軌道を有するとともに車体側に取り付けられる半径方向フランジが形成された外輪部材と、外周面に上記外輪軌道と対向する内輪軌道を有するとともに車輪側に取り付けられる半径方向フランジが車両外部側端部に形成された内輪部材と、上記外輪軌道と内輪軌道間に保持器にて保持されて回転自在に設けられた転動体と、外輪部材の車両内部側の端部に固定されて外輪部材開放部を密閉するカバーと、外輪部材の車両外部側の端部に固定された密封装置と、内輪部材側に装着された回転被検出部材と、この回転被検出部材に対向して外輪部材側に装着された回転検出部材とを備えた回転速度検出装置付きホイール用転がり軸受装置において、外輪部材に固定された密封装置は、外輪部材の外周面に嵌合固定される円筒部と、この円筒部端部から外輪部材端面に沿って内径方向に延びる円輪部と、この円輪部の端部に固定され内輪部材に接触するリップとから形成され、上記密封装置の円筒部外周面に回転検出部材が一体化されて設けられているとともに、この回転検出部材に対向するよう内輪部材の半径方向フランジに回転被検出部材が設けられていることを特徴とする。
【０００６】
【発明の実施の形態】本発明の実施形態を図１に基づいて説明する。回転速度検出装置付きホイール用転がり軸受装置は、内周面に複列の外輪軌道２，３を有するとともに車体側に取り付けられる半径方向フランジ１ａが形成された外輪部材１と、外周面に上記外輪軌道２，３と対向する内輪軌道５，６を有するとともに車輪側に取り付けられる半径方向フランジ４ｃが車両外部側端部に形成された内輪部材４と、上記外輪軌道２，３と内輪軌道５，６間に保持器８にて保持されて回転自在に設けられた転動体７と、外輪部材１の車両内部側の端部に固定されて外輪部材開放部を密閉するカバー９と、外輪部材１の車両外部側の端部に固定された密封装置１１とを有する。上記内輪部材４は、上記半径方向フランジ４ｃが形成されたハブ軸部材４ａとこのハブ軸部材４ａの端部外周面に嵌合された内輪４ｂとから形成されており、この内輪４ｂ外周面およびハブ軸部材４ａ周面に上記内輪軌道５，６がそれぞれ形成されている。さらに、上記内輪４ｂはハブ軸部材４ａにナット１０にて締結されている。
【０００７】また、外輪部材１の車両外部側の端部に固定された密封装置１１は、外輪部材１の外周面に嵌合固定される円筒部１１ａと、この円筒部１１ａ端部から外輪部材１端面に沿って内径方向に延びる円輪部１１ｂと、この円輪部１１ｂの端部に固定され内輪部材４であるハブ軸部材４ａに接触するリップ１１ｃとから形成され、上記密封装置１１の円筒部１１ａ外周面に回転検出

部材１２が一体化されて設けられている。この回転検出部材１２に対向するよう内輪部材４の半径方向フランジ４ｃ側面には回転被検出部材１３が設けられ、この構成により軸受回転数が検出される。なお、上記回転検出部材１２は、例えばホール素子式あるいは磁気抵抗素子式のアクティブ型センサ等が使用され、回転被検出部材１３は、半径方向フランジ４ｃ側面に直接形成された円周上等間隔の歯、あるいは、この歯が形成された別部材を半径方向フランジ４ｃに装着したもの等、種々公知の構造が採用される。

【０００８】

【発明の効果】この発明の回転速度検出装置付きホイール用転がり軸受装置は、外輪部材の車両外部側に固定された密封装置が、外輪部材の外周面に嵌合固定される円筒部と、この円筒部端部から外輪端面に沿って内径方向に延びる円輪部と、この円輪部の端部に固定され内輪部材に接触するリップとから形成され、上記密封装置の円筒部外周面に回転検出部材が一体化されて設けられているとともに、この回転検出部材に対向するよう内輪部材の半径方向フランジに回転被検出部材が設けられているため、軸受の軸方向のコンパクト化が可能となるとともに、回転検出部材の取扱いが容易となる。

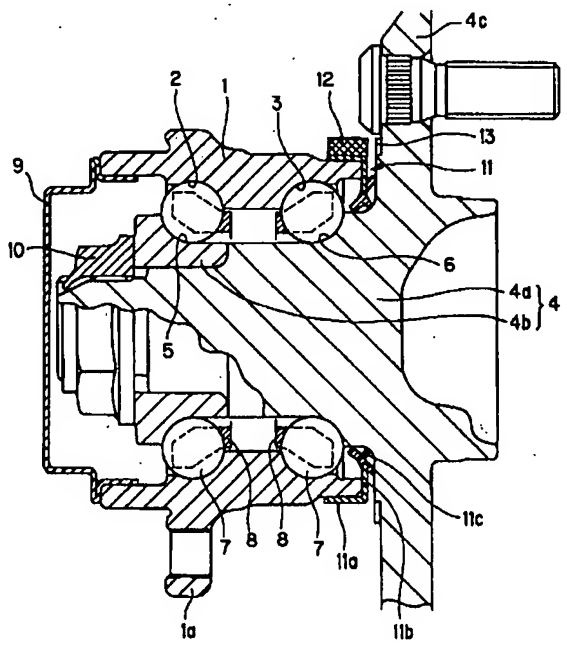
【図面の簡単な説明】

【図１】本発明の一実施形態の軸受装置の要部断面図である。

【符号の説明】

１　外輪部材
１ａ　半径方向フランジ
２　外輪軌道
３　外輪軌道
４　内輪部材
４ｃ　半径方向フランジ
５　内輪軌道
６　内輪軌道
７　転動体
８　保持器
９　カバー
１０　ナット
１１　密封装置
１１ａ　円筒部
１１ｂ　円輪部
１１ｃ　リップ
１２　回転検出部材
１３　回転被検出部材

【図１】



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CLAIMS

[Claim(s)]
[Claim 1]An outer ring member in which a radial flange attached to the body side while having an outer race track of a double row in inner skin was formed.
An inner ring member by which a radial flange attached to the wheel side while having the above-mentioned outer race track and an inner race track which counters in a peripheral face was formed in a vehicles outer side end.
A rolling element which was held with a cage and provided between the above-mentioned outer race track and an inner race track enabling free rotation.
Covering which is fixed to an end by the side of an inside of vehicles of an outer ring member, and seals an outer ring member releasing part.
A sealing device fixed to an end of a vehicles outer side of an outer ring member, rotation detected part material with which the inner ring member side was equipped, and rotation detector material which countered this rotation detected part material and with which the outer ring member side was equipped.
A sealing device which is a rolling bearing device for wheels with a rotational-speed-detection device provided with the above, and was fixed to an outer ring member, A body by which fit fixing is carried out to a peripheral face of an outer ring member, and a round ring part prolonged in an inner diameter direction along the outer ring member end face from this body end, While being formed from a lip which is fixed to an end of this round ring part, and contacts an inner ring member and uniting rotation detector material with a body peripheral face of the above-mentioned sealing device, Rotation detected part material is provided in a radial flange of an inner ring member so that this rotation detector material may be countered.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the rolling bearing device for wheels with a rotational-speed-detection device used for a car etc.
[0002]
[Description of the Prior Art]Conventionally the rolling bearing device for wheels with a rotational-speed-detection device used for a car etc., The outer ring member in which the radial flange attached to the body side was formed like the statement to JP,8-285879,A while having an outer race track of a double row in inner skin, The inner ring member by which the radial flange attached to the wheel side was formed in the vehicles outer side end while having the above-mentioned outer race track and an inner race track which counters in the peripheral face, The rolling element which was held with the cage and provided between the above-mentioned outer race track and the inner race track enabling free rotation, Covering which is fixed to the end by the side of the inside of vehicles of an outer ring member, and seals an outer ring member releasing part, It has the sealing device fixed to the end of the vehicles outer side of an outer ring member, the rotation detected part material with which the inner ring member was equipped, and the rotation detector material with which covering which countered this rotation detected part material and was fixed to the outer ring member was equipped.
[0003]
[Problem(s) to be Solved by the Invention]In the above-mentioned conventional rolling bearing device for wheels with a rotational-speed-detection device, since rotation detector material was incorporated as covering fixed to the outer ring member, and an integral type, the space was needed for shaft orientations and miniaturization of shaft orientations was difficult.
[0004]An object of this invention is to provide the rolling bearing device for wheels with a rotational-speed-detection device which becomes shaft orientations miniaturizable.
[0005]
[Means for Solving the Problem]An outer ring member in which a radial flange attached to the body side was formed as a means to solve an aforementioned problem while having an outer race track of a double row in inner skin, An inner ring member by which a radial flange attached to the wheel side was formed in a vehicles outer side end while having the above-mentioned outer race track and an inner race track which counters in a peripheral face, A rolling element which was held with a cage and provided between the above-mentioned outer race track and an inner race track enabling free rotation, Covering which is fixed to an end by the side of an inside of vehicles of an outer ring member, and seals an outer ring member releasing part, A sealing device fixed to an end of a vehicles outer side of an outer ring member, and rotation detected part material with which the inner ring member side was equipped, In a rolling bearing device for wheels with a rotational-speed-detection device provided with rotation detector material which countered this rotation detected

part material and with which the outer ring member side was equipped, a sealing device fixed to an outer ring member, A body by which fit fixing is carried out to a peripheral face of an outer ring member, and a round ring part prolonged in an inner diameter direction along the outer ring member end face from this body end, While being formed from a lip which is fixed to an end of this round ring part, and contacts an inner ring member and uniting rotation detector material with a body peripheral face of the above-mentioned sealing device, Rotation detected part material is provided in a radial flange of an inner ring member so that this rotation detector material may be countered.

[0006]

[Embodiment of the Invention]The embodiment of this invention is described based on drawing 1. The rolling bearing device for wheels with a rotational-speed-detection device is provided with the following.

The outer ring member 1 in which the radial flange 1a attached to the body side while having the outer race tracks 2 and 3 of a double row in inner skin was formed.

The inner ring member 4 by which the radial flange 4c attached to the wheel side while having the above-mentioned outer race tracks 2 and 3 and the inner race tracks 5 and 6 which counter in a peripheral face was formed in the vehicles outer side end.

The rolling element 7 which was held with the cage 8 and provided between the above-mentioned outer race tracks 2 and 3 and the inner race track 5 and 6 enabling free rotation.

The covering 9 which is fixed to the end by the side of the inside of vehicles of the outer ring member 1, and seals an outer ring member releasing part, and the sealing device 11 fixed to the end of the vehicles outer side of the outer ring member 1.

The above-mentioned inner ring member 4 is formed from the inner ring of spiral wound gasket 4b which fitted into the outer-periphery-of-end side of the hub-spindle member 4a in which the above-mentioned radial flange 4c was formed, and this hub-spindle member 4a, and the above-mentioned inner race tracks 5 and 6 are formed in this inner-ring-of-spiral-wound-gasket 4b peripheral face and a hub-spindle member 4a peripheral surface, respectively. The above-mentioned inner ring of spiral wound gasket 4b is concluded by the hub-spindle member 4a with the nut 10.

[0007]The sealing device 11 fixed to the end of the vehicles outer side of the outer ring member 1, The body 11a by which fit fixing is carried out to the peripheral face of the outer ring member 1, and the round ring part 11b prolonged in an inner diameter direction along the outer ring member 1 end face from this body 11a end, It is formed from the lip 11c which is fixed to the end of this round ring part 11b, and contacts the hub-spindle member 4a which is the inner ring member 4, and the rotation detector material 12 is united with the body 11a peripheral face of the above-mentioned sealing device 11. The rotation detected part material 13 is formed in the radial flange 4c side of the inner ring member 4 so that this rotation detector material 12 may be countered, and bearing number of rotations is detected by this composition. The above-mentioned rotation detector material 12 is used by the Hall device type or magnetic-resistance-element-type active type sensor etc., for example, and the rotation detected part material 13, A publicly known structure is variously adopted that etc. with which the radial flange 4c was equipped in the gear tooth of the circumference good interval directly formed in the radial flange 4c side, or the separate member in which this gear tooth was formed.

[0008]

[Effect of the Invention]The rolling bearing device for wheels with a rotational-speed-detection device of this invention, The body to which fit fixing of the sealing device fixed to the vehicles outer side of an outer ring member is carried out in the peripheral face of an outer ring member, It is formed from the lip which is fixed to the round ring part prolonged in an inner diameter direction over an outer ring end from this body end, and the end of this round ring part, and contacts an inner ring member, While rotation detector material is united with the body peripheral face of the above-mentioned sealing device, Since rotation detected part material is provided in the radial flange of the inner ring member so that this rotation detector material may be countered, while becoming

miniaturizable [the shaft orientations of a bearing], the handling of rotation detector material becomes easy.

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TECHNICAL FIELD

[Field of the Invention]This invention relates to the rolling bearing device for wheels with a rotational-speed-detection device used for a car etc.

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PRIOR ART

[Description of the Prior Art]Conventionally the rolling bearing device for wheels with a rotational-speed-detection device used for a car etc., The outer ring member in which the radial flange attached to the body side was formed like the statement to JP,8-285879,A while having an outer race track of a double row in inner skin, The inner ring member by which the radial flange attached to the wheel side was formed in the vehicles outer side end while having the above-mentioned outer race track and an inner race track which counters in the peripheral face, The rolling element which was held with the cage and provided between the above-mentioned outer race track and the inner race track enabling free rotation, Covering which is fixed to the end by the side of the inside of vehicles of an outer ring member, and seals an outer ring member releasing part, It has the sealing device fixed to the end of the vehicles outer side of an outer ring member, the rotation detected part material with which the inner ring member was equipped, and the rotation detector material with which covering which countered this rotation detected part material and was fixed to the outer ring member was equipped.

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EFFECT OF THE INVENTION

[Effect of the Invention]The rolling bearing device for wheels with a rotational-speed-detection device of this invention, The body to which fit fixing of the sealing device fixed to the vehicles outer side of an outer ring member is carried out in the peripheral face of an outer ring member, It is formed from the lip which is fixed to the round ring part prolonged in an inner diameter direction over an outer ring end from this body end, and the end of this round ring part, and contacts an inner ring member, While rotation detector material is united with the body peripheral face of the above-mentioned sealing device, Since rotation detected part material is provided in the radial flange of the inner ring member so that this rotation detector material may be countered, while becoming miniaturizable [the shaft orientations of a bearing], the handling of rotation detector material becomes easy.

[Translation done.]

* NOTICES *

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]In the above-mentioned conventional rolling bearing device for wheels with a rotational-speed-detection device, since rotation detector material was incorporated as covering fixed to the outer ring member, and an integral type, the space was needed for shaft orientations and miniaturization of shaft orientations was difficult.
[0004]An object of this invention is to provide the rolling bearing device for wheels with a rotational-speed-detection device which becomes shaft orientations miniaturizable.

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MEANS

[Means for Solving the Problem]An outer ring member in which a radial flange attached to the body side was formed as a means to solve an aforementioned problem while having an outer race track of a double row in inner skin, An inner ring member by which a radial flange attached to the wheel side was formed in a vehicles outer side end while having the above-mentioned outer race track and an inner race track which counters in a peripheral face, A rolling element which was held with a cage and provided between the above-mentioned outer race track and an inner race track enabling free rotation, Covering which is fixed to an end by the side of an inside of vehicles of an outer ring member, and seals an outer ring member releasing part, A sealing device fixed to an end of a vehicles outer side of an outer ring member, and rotation detected part material with which the inner ring member side was equipped, In a rolling bearing device for wheels with a rotational-speed-detection device provided with rotation detector material which countered this rotation detected part material and with which the outer ring member side was equipped, a sealing device fixed to an outer ring member, A body by which fit fixing is carried out to a peripheral face of an outer ring member, and a round ring part prolonged in an inner diameter direction along the outer ring member end face from this body end, While being formed from a lip which is fixed to an end of this round ring part, and contacts an inner ring member and uniting rotation detector material with a body peripheral face of the above-mentioned sealing device, Rotation detected part material is provided in a radial flange of an inner ring member so that this rotation detector material may be countered.
[0006]
[Embodiment of the Invention]The embodiment of this invention is described based on drawing 1.
The rolling bearing device for wheels with a rotational-speed-detection device is provided with the following.
The outer ring member 1 in which the radial flange 1a attached to the body side while having the outer race tracks 2 and 3 of a double row in inner skin was formed.
The inner ring member 4 by which the radial flange 4c attached to the wheel side while having the above-mentioned outer race tracks 2 and 3 and the inner race tracks 5 and 6 which counter in a peripheral face was formed in the vehicles outer side end.
The rolling element 7 which was held with the cage 8 and provided between the above-mentioned outer race tracks 2 and 3 and the inner race track 5 and 6 enabling free rotation.
The covering 9 which is fixed to the end by the side of the inside of vehicles of the outer ring member 1, and seals an outer ring member releasing part, and the sealing device 11 fixed to the end of the vehicles outer side of the outer ring member 1.
The above-mentioned inner ring member 4 is formed from the inner ring of spiral wound gasket 4b which fitted into the outer-periphery-of-end side of the hub-spindle member 4a in which the above-mentioned radial flange 4c was formed, and this hub-spindle member 4a, and the above-mentioned inner race tracks 5 and 6 are formed in this inner-ring-of-spiral-wound-gasket 4b peripheral face and a hub-spindle member 4a peripheral surface, respectively. The above-mentioned

inner ring of spiral wound gasket 4b is concluded by the hub-spindle member 4a with the nut 10.
[0007]The sealing device 11 fixed to the end of the vehicles outer side of the outer ring member 1, The body 11a by which fit fixing is carried out to the peripheral face of the outer ring member 1, and the round ring part 11b prolonged in an inner diameter direction along the outer ring member 1 end face from this body 11a end, It is formed from the lip 11c which is fixed to the end of this round ring part 11b, and contacts the hub-spindle member 4a which is the inner ring member 4, and the rotation detector material 12 is united with the body 11a peripheral face of the above-mentioned sealing device 11. The rotation detected part material 13 is formed in the radial flange 4c side of the inner ring member 4 so that this rotation detector material 12 may be countered, and bearing number of rotations is detected by this composition. The above-mentioned rotation detector material 12 is used by the Hall device type or magnetic-resistance-element-type active type sensor etc., for example, and the rotation detected part material 13, A publicly known structure is variously adopted that etc. with which the radial flange 4c was equipped in the gear tooth of the circumference good interval directly formed in the radial flange 4c side, or the separate member in which this gear tooth was formed.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]It is an important section sectional view of the bearing device of one embodiment of this invention.
[Description of Notations]
1 Outer ring member
1a Radial flange
2 Outer race track
3 Outer race track
4 Inner ring member
4c Radial flange
5 Inner race track
6 Inner race track
7 Rolling element
8 Cage
9 Covering
10 Nut
11 Sealing device
11a Body
11b Round ring part
11c Lip
12 Rotation detector material
13 Rotation detected part material

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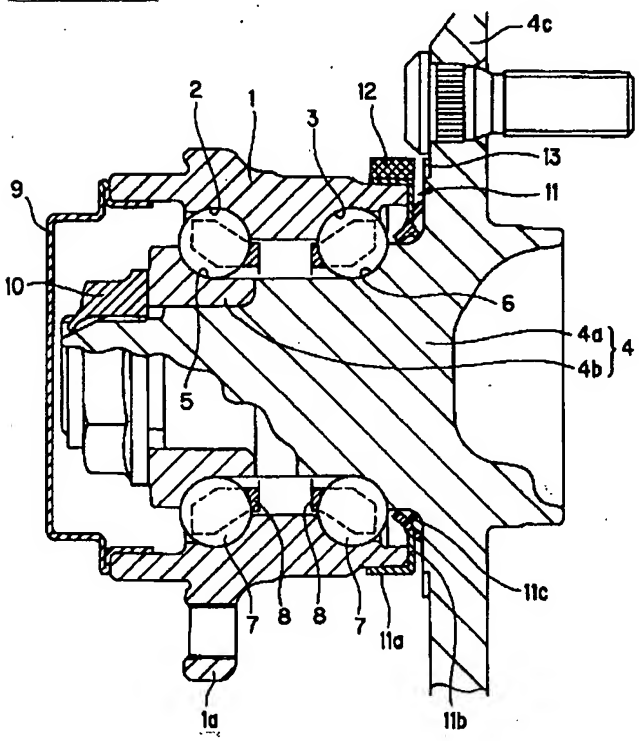
DRAWINGS

[Drawing 1]



[Translation done.]